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10/566,617

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Hisatoshi Motoda

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EXAMINER

GRAY, JILL M

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,617	<b>Applicant(s)</b> MOTODA ET AL.	
	<b>Examiner</b> Jill Gray	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24 and 28-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24 and 28-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                     |                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                         | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 29, 2009 has been entered.
2. Pursuant to the entry of the amendment of December 29, 2009, the status of the claims is as follows: Claims 24, 28-46 are pending. Claims 1-23, 25-27 are cancelled. Claims 24 and 29 are amended. Claims 32-46 are new.
3. The rejection of claims 1-2, 4-6, 8-11, 17, 20, 24, and 28 under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Publication JP 2000-215872 (machine translation) is moot in view of applicants' amendments.
4. The rejection of claims 3, 7, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP 2000-215872 (machine translation) is moot in view of applicants' amendments.
5. The rejection of claims 15 and 16 under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP 2000-215872 in view of European Patent Publication EP 432,489 is moot in view of applicants' amendments.

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6. The rejection of claims 18-19, 22, and 25-27 under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP 2000-215872 in view of PCT Publication WO 95/06769 is moot in view of applicants' amendments.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 24, 29, 37 and 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claims 24, 37, 29 and 42 are indefinite because the language of "performing heat-and-humidity treatment on the binder resin" lacks clear antecedent basis because there has been no clear positive recitation of a binder resin or that the binder resin is a heat-and-humidity gelling resin. Also, "the fiber surface" lacks clear antecedent basis because this is not the same as a "fibrous structure". Also, in (II) and (III) the language of "the conjugate fiber" lacks antecedent basis, because it is not clear if the fiber being referenced is the conjugate fiber of (I) or a different fiber.

Claim 29 is also indefinite because the language of "forming a filler-affixed fiber and molding the fiber structure into a predetermined shape" is confusing. In particular, the fiber structure is processed in the metal dies hence it is not clear how a "filler-affixed fiber" is formed, as opposed to a filler-affixed fibrous structure. Additionally, it is not clear which of the process steps forms the heat-and-humidity gelling conjugate fiber (lines 17-19) or if there is clear antecedent basis for this language.

Claims 24, 37 and 42 are also indefinite because the language of “causing contact” is vague and does not set for a clear recitation of process steps directed to the treatment with the heated body (claims 37 and 42). Also, the language of “forming a filler-affixed fiber” is confusing because the fiber structure has the filler dispersed therein, and a fiber and fibrous structure are not necessarily the same (claims 24, 37, and 42).

Additionally with claim 42, it is not clear if the heated body is compression molded or if the fibrous structure is compression molded.

***Claim Rejections - 35 USC § 103***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 24, 28, 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP2000-215872 (machine translation) and translated excerpts provided by applicants (hereinafter referred to as “the translation”) in view of PCT Publication WO 95/06769 (Foster) and Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets, cited to show the state of the art.

**Regarding Independent claim 24 and 37**

The translation disclose a method for producing a fiber structure containing a fiber, a binder resin on the fiber surface and a filler material attached to binder resin. See entire document. The translation discloses the steps of providing a filler dispersed solution, impregnating, sprinkling or applying the solution to the fibrous structure and performing wet heat adhesion at a temperature of not less than 70°C to the fibrous

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substrate to anchor the filler material to the fiber surface and forming a filler-affixed fiber. See [0020]. Also, the translation discloses in Embodiment 1, that the wet heat adhesion was carried out at a temperature of 135°C. In addition, the translation discloses that the fibrous structure comprises bicomponent fibers wherein one component is an ethylene-vinyl alcohol copolymer which has the ability to adhere in wet heat and another thermoplastic synthetic fiber component. See [0006] and [0009]-[0010] and [0031].

Regarding the requirement that the binder is a heat and humidity gelling resin, the translation discloses that the ethylene vinyl alcohol copolymer forms an adhesive in wet heat. See claim 2 of translation. It is noted that ethylene vinyl alcohol copolymer is the same type of resin disclosed by applicants as being a heat and humidity gelling resin. Absent of other distinguishing characteristics of present claim 24, the examiner has reason to believe that the ethylene vinyl alcohol copolymer that forms an adhesive component when subjected to heat and humidity of the prior art is substantially the same as the heat and humidity gelling resin fiber components contemplated by applicants. Accordingly, the examiner has reason to believe that the prior art composition forms a gel when subjected to heat and humidity thereby allowing the grains to become affixed to the binder resin. "Products of identical chemical composition can not have mutually exclusive properties." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are provided by identical or substantially identical processes, a *pima facie* case of either

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anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The burden is upon the Applicant to prove otherwise.

Note MPEP 2112.01

Regarding the requirement that the heat and humidity atmosphere has a temperature range from not less than the gelling temperature of the heat and humidity gelling resin to not more than the melting point minus 20°C, it is the examiner's position that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233 (CCPA 1955). In the present case, the translation discloses that the wet heat adhesion step is performed at a temperature of not less than 70°C and further discloses in the example the wet adhesion step being conducted at a temperature of 135°C. Note material data sheets Noltex Soarnel DT 2903 and EVALCA EVAL F100, of various commercially available ethylene vinyl alcohol copolymers which show melting points at least 20°C above the temperature disclosed by the translation, cited to show the state of art. The translation also discloses that this process results in the anchoring of the filler material to the fibrous substrate. Hence, the general conditions of the present claim are disclosed. Moreover, while the translation is silent as to the specific gelling temperature and melting point of his ethylene vinyl alcohol copolymer, the skilled artisan would reasonable presume that for the adhesion of the

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filler materials to the fiber substrate to occur, the wet adhesion atmosphere must be greater than the gelling temperature of the resin. It would have been obvious to one having ordinary skill in the art to maintain the temperature lower than the melting temperature of the resin in order to maintain some degree of integrity of the fibrous structure while adhering the filler materials thereto.

The translation does not specifically disclose that the wet heat adhesion is performed with steam.

Foster teaches a method for bonding a fiber assembly and fiber assembly formed therefrom comprising impinging a high steam temperature jet on the assembly to melt a melt component to fuse the fibers together and form a fiber molded body. See entire document, for example, abstract. In addition, Foster teaches that the melt component may be a melt fiber that is a bicomponent fiber having at least one thermoplastic component.

It would have been obvious to one having ordinary skill in the art to perform the wet heat adhesion as taught by the translation with steam as taught by Foster, with the reasonable expectation of the filler material adhering to the fiber surfaces and the fibers fusing to form fibrous structures and molded bodies.

**Regarding dependent claims 28 and 32-36**

Regarding claim 28, the translation discloses that the filler can be applied as an aqueous solution to the bicomponent fibers. See [0020].

Regarding claim 32, the translation, as set forth above, discloses that the preferred resin includes ethylene vinyl alcohol copolymer resin. See claim 2.



Regarding claim 33, the translation discloses that filler materials have a particle size within the present claimed range. See [0014] and [0032]. Moreover, it is the position of the examiner that where there is not substantive change in function or properties of the particles, the specific particle size or a change in size is not construed to be a matter of invention in the absence of factual evidence to the contrary of unexpected or superior properties directly related to the specific particle size.

Regarding claims 34-36, the translation discloses that the filler materials are inorganic particles, such as alumina or titanium dioxide. Accordingly, the requirements of these claims are not construed to be a matter of invention in the absence of factual evidence to the contrary. See [0013] and [0032].

### **Examiner's Conclusion**

Therefore the combined teachings of the translation and Foster would have rendered obvious the invention as claimed in present claims 24, 28 and 32-36.

11. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP2000-215872 (machine translation) and translated excerpts provided by applicants (hereinafter referred to as "the translation") in view of PCT Publication WO 95/06769 (Foster), as applied above to claims 24, 28 and 32-36, and further in view of Van Hartesveldt, 2,841,823 and Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets, cited to show the state of the art.

### **Regarding Independent claim 29**

The translation and Foster and Noltex Soarnel DT 2903 and EVALCA EVAL F100 are as set forth above and incorporated herein, but do not specifically teach performing the wet adhesion in a pair of metal dies.

In this regard, it is the examiner's position that the limitation of "a pair of metal dies" is drawn to the apparatus for performing the process. The determination of whether a claimed method is patentable is unaffected by the particular apparatus for carrying out that method. Hence, this limitation adds no patentable weight to the present claim. Alternatively, Van Hartesveldt teaches a conventional molding method using steam or heated water, whereby said method uses matched metal dies. See column 1, lines 29-30. It is the examiner's position that performing the process of wet adhesion on a fibrous material using a pair of metal dies would have been obvious to one of ordinary skill in this art at the time the invention was made. Accordingly, this requirement is not construed to be a matter of invention.

**Regarding dependent claims 30-31**

Regarding claim 30, it would have been obvious to the skilled artisan to insert the fibrous material of the translation into a pair of metal dies motivated by the teachings of Foster and Van Hartesveldt that known molding methods using steam include matched metal dies. Therefore, it is the examiner's position that this requirement is not construed to be a matter of invention.

Regarding claim 31, it is the examiner's position that this requirement is an obvious processing step because for the processing to occur, the fibrous structure would have to come into contact with the metal dies and some amount of pressure

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necessarily would occur, even if minimal. Applicants' claim does not require any specific amount of pressure. Hence, the combined prior art teachings would render this requirement obvious and it is not construed to be a matter of invention.

### **Examiner's conclusion**

Therefore, the combined teachings of the translation, Foster and Van Hartesveldt would have rendered obvious the invention as claimed in present claims 29-31.

12. Claims 37-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP2000-215872 (machine translation) and translated excerpts provided by applicants (hereinafter referred to as "the translation") in view of PCT Publication WO 95/06769 (Foster), 24, 28 and 32-36, and Noltex Soarnel DT 2903 and EVALCA EVAL F100, material data sheets, cited to show the state of the art, and further in view of Sisson 4,209,563.

### **Regarding Independent claims 37 and 42**

The translation and Foster and Noltex Soarnel DT 2903 and EVALCA EVAL F100 are as set forth above, and incorporated herein, but do not teach the surface pressure of the heated body (claim 37) or the line pressure (claim 42).

Sisson teaches a method for making a bonded filament cloth. In addition, Sisson teaches a method wherein a heated fluid such as heated air or steam is provided or developed at the bonding nip (during contact of the web with the heated roll) to provide more uniform heating of the bond points. See entire document, for example, column 3, lines 36-41 and column 30, line 62 through column 31, and line 28. Also, Sisson

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teaches in Example III, bonding a web using a surface pressure of 10 pli (psi) (0.06 MPa) and line pressure of 170 pli (117.21 N/cm). See column 32, lines 37-42.

It would have been obvious to one having ordinary skill in the art to modify the teachings of the translation in view of Foster, wherein the wet adhesion step is preformed performed by contacting the fibrous substrate with a heated body, and/or heated rolls, wherein the surface pressure and compression pressure are each within the present claimed range, as taught by Sisson, with the reasonable expectation of obtaining more uniform heating of the bond points.

**Regarding dependent claims 38-41 and 43-46**

Regarding claims 38 and 43, as set forth previously, Regarding the requirement that the heat and humidity atmosphere has a temperature range from not less than the gelling temperature of the heat and humidity gelling resin to not more than the melting point minus 20°C, it is the examiner's position that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233 (CCPA 1955). In the present case, the translation discloses that the wet heat adhesion step is performed at a temperature of not less than 70°C and further discloses in the example the wet adhesion step being conducted at a temperature of 135°C. Note material data sheets of various commercially available ethylene vinyl alcohol copolymers which show melting points at least 20°C above the temperature disclosed by the translation, cited to show the state of art. The translation also discloses that this process results in the anchoring of the filler material to the fibrous substrate. Hence, the general conditions of

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the present claim are disclosed. Moreover, while the translation is silent as to the specific gelling temperature and melting point of the ethylene vinyl alcohol copolymer, the skilled artisan would reasonably presume that for the adhesion of the filler materials to the fiber substrate to occur, the wet adhesion atmosphere must be greater than the gelling temperature of the resin. It would have been obvious to one having ordinary skill in the art to maintain the temperature lower than the melting temperature of the resin in order to maintain some degree of integrity of the fibrous structure while adhering the filler materials thereto.

Regarding claims 39 and 44, the translation discloses that the filler can be applied as an aqueous solution to the bicomponent fibers. See [0020].

Regarding claims 40 and 45, the translation, as set forth above, discloses that the preferred resin includes ethylene vinyl alcohol copolymer resin. See claim 2.

Regarding claims 41 and 46, the translation discloses that filler materials have a particle size within the present claimed range. See [0014] and [0032]. Moreover, it is the position of the examiner that where there is not substantive change in function or properties of the particles, the specific particle size or a change in size is not construed to be a matter of invention in the absence of factual evidence to the contrary of unexpected or superior properties directly related to the specific particle size.

### **Examiner's conclusion**

Therefore, the combined teachings of the translation, Foster and Sisson would have rendered obvious the invention as claimed in present claims 37-46.

### ***Response to Arguments***

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13. Applicant's arguments with respect to claims 29-31 have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments filed December 29, 2009 have been fully considered but they are not persuasive.

Applicants argue that Foster merely discusses use of high temperature superheated steam jets to impinge on a fiber web to melt a melt component fiber and fuse the fiber together and provides no teachings or suggestion of causing a heat and humidity gelling resin to gel so that a filler is affixed to a fiber surface by the binder resin, wherein the heat and humidity gelling resin is in a gel state when subjected to heat and humidity as required by claim 24.

In this regard, it is the examiner's position that the test for obviousness under 35 U.S.C. 103 is not the express suggestion of the claimed invention in any or all of the references but what the references taken collectively would suggest. *In re Conrad*, 169 USPQ 170 (CCPA 1971). In the present case, the translation discloses that its fibrous material can be bonded using a wet adhesion process, and further teaches the same type of resin as that contemplated by applicants. Foster teaches wet adhesion processes that are suitable for bonding fibrous material. The collective teachings in the prior art would fairly suggest to the skilled artisan that the fibrous material of the translation could be bonded using a wet adhesion process that utilizes steam.

Applicants argue that Foster does not teach or suggest performing heat and humidity treatment with a heat and humidity atmosphere that has a temperature range within the present claimed range.

Again as set forth above, the test for obviousness under 35 U.S.C. 103 is not the express suggestion of the claimed invention in any or all of the references but what the references taken collectively would suggest. In the present case, the examiner's position regarding the critical claimed temperature range has been set forth above and is incorporated herein. In particular, the translation discloses that the wet heat adhesion step is performed at a temperature of not less than 70°C and further discloses in the example the wet adhesion step being conducted at a temperature of 135°C. It would have been obvious to one having ordinary skill in the art to maintain the temperature lower than the melting temperature of the resin in order to maintain some degree of integrity of the fibrous structure while adhering the filler materials thereto. Therefore, the collective teachings of the translation and Foster would have rendered obvious the claimed critical temperature range.

Applicants argue that the present record does not provide any teachings or suggestions of the advantages enjoyed by the process of claim 24, e.g. helping maintain the shape of the fiber and the nonwoven fabric.

In this regard, the fact that applicants use the present claimed process to help maintain fiber and nonwoven shape does not alter the conclusion that the present claimed process steps would be *prima facie* obvious in view of the collective teachings of the prior art.

No claims are allowed.

### ***Conclusion***

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15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicants' attention is directed to all documents that have been cited on the PTOL-892, in particular, Mays et al., 4,713,134 which discloses a process for bonding webs of bicomponent fibers which uses the heated rolls, such as steam cans to bond the fibrous webs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill Gray whose telephone number is 571-272-1524.

The examiner can normally be reached on M-Th and alternate Fridays 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jill Gray/  
Primary Examiner  
Art Unit 1794



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